

METAL COMPLEXES FOR USE AS GAS GENERANTS

Abstract of the Disclosure

Gas generating compositions and methods for their use are provided. Metal complexes are used as gas generating compositions. These complexes are comprised of a metal cation template, a neutral ligand containing hydrogen and nitrogen, and sufficient oxidizing anion to balance the charge of the complex. The complexes are formulated such that when the complex combusts, nitrogen gas and water vapor is produced. Specific examples of such complexes include metal nitrite ammine, metal nitrate ammine, and metal perchlorate ammine complexes, as well as hydrazine complexes. A binder and co-oxidizer can be combined with the metal complexes to improve crush strength of the gas generating compositions and to permit efficient combustion of the binder. Such gas generating compositions are adaptable for use in gas generating devices such as automobile air bags.

5

10

15

20

25

30

35

40

45

50

55

60

65

70

75

80

85

90

95